South Carolina Department of Transportation

Engineering Directive

Directive Number:	**ED-63**	**Effective: December 6, 2024**
Subject:	**Primary Pavement Improvement Project Prioritization Process**	
References:	**Section 57-1-370 of South Carolina Code of Laws, 1976, as amended; S.C. Code of Regulations 63-10, as amended**	
Purpose:	**To Identify the Process to Prioritize Primary Route Pavement Projects**	
Primary Department:	**Maintenance**	

In 2007, the South Carolina General Assembly enacted Act 114. One of the landmark items in Act 114 was the requirement that the South Carolina Department of Transportation (SCDOT) establish a project prioritization process. In 2016, the General Assembly enacted Act 275. Act 275 eliminated some of Act 114's requirements but it retained the requirement for project prioritization. This requirement is codified in Section 57-1-370 of the South Carolina Code of Laws, 1976, as amended. Additional detail on the process is found in S.C. Code of Regulations 63-10, as amended.

This engineering directive details the process for ranking **primary route** pavement improvement needs using objective and quantifiable criteria and describes the distribution of funds to the counties. This process does not apply to the selection of roads for preventive maintenance or pavement preservation. The goal of preventive maintenance and pavement preservation is to prevent roads in fair condition from becoming poor and to keep good roads in good condition through the timely application of the appropriate preventive maintenance or preservation treatment. Roads in a fair (>2.64 – 3.34) or good (>3.34) condition based on pavement quality index (PQI) are eligible for preventive maintenance treatments or preservation treatments in accordance with the SCDOT Guidelines for Selecting Preventive Maintenance Treatments.

SCDOT has approximately 24,000 lane miles of primary routes. Available funding will be used for pavement improvement, preventive maintenance, and pavement preservation. Funding will be distributed to each county based on the county's percentage of primary route lane miles compared to the statewide total of primary route lane miles. A portion of the funding will be used for the application of preventive maintenance and pavement preservation treatments, with the remaining funding used for pavement improvement (rehabilitation and reconstruction).

As part of a pavement management system, the annual Pavement Improvement and Preservation Program plans for each county will aim to add more years of lane-mile service life to the system than is lost. While the prioritized ranking of the worst sections of roadway ensures the Department is addressing roads in poor condition, the preventive maintenance and preservation treatments are aimed at delaying the deterioration of roads in order to extend their life cycle in good and fair condition by utilizing more cost-effective treatments than rehabilitation and reconstruction used on roads in poor condition.

The following **relevant** criteria and associated weightings will be used when calculating the scores to rank pavement improvement candidates on a scale of 0 to 1,000 points. The higher the point value a road segment receives, the higher the priority for pavement improvement.

- **Pavement Quality Index (PQI) (40% weight, 0 to 400 points)** – PQI is a numerical value representing the overall condition of the pavement surface based on observable and measurable data related to the road segment in question. PQI is based on a 5 point scale, with 0.0 being the worst and 5.0 being the best. Because PQI is the criterion that primarily supports the purpose and need for pavement improvement projects, it has therefore received the highest weighting among the relevant criteria.

- **International Roughness Index (IRI) (15% weight, 15 to 150 points)** – IRI is a measured numerical value for the roughness of a pavement. A pavement can be structurally sound and have poor ride quality. This criterion has an effect on safety and the public's perception of the quality of the pavement and the need for resurfacing. The 15% weighting reflects this importance.

- **Average Daily Traffic (ADT) (15% weight, 15 to 150 points)** – ADT is the average traffic volume per day. Pavements are designed to carry loads expressed as equivalent single axle loads (ESALS). The higher the average daily traffic the faster a pavement will reach the end of its design life and need to be rehabilitated or reconstructed. Therefore, the amount of traffic a pavement carries directly affects its service life. The 15% weighting reflects this importance.

- **Percent Patching (5% weight, 5 to 50 points)** – This factor gives the estimated percentage of a road segment that has been patched or is in need of patching. This criterion is an indication of the corrective maintenance performed on the pavement and the need for overall resurfacing. It is also a factor included in the computation of PQI and therefore is given a lower weighting as a stand-alone criterion.

- **Average Daily Truck Traffic (ADTT) (10% weight, 5 to 100 points)** – ADTT is the percentage of ADT that is truck traffic, converted to truck volume. While an important contributor to the deterioration of a pavement, it is already a factor in the calculation of ADT. Therefore, it is given a lower weighting as a stand-alone criterion.

- **Strategic Corridor Network (5% weight, 0 to 50 points)** – This criterion is used as a supplemental criterion to give some added emphasis to roads on the strategic corridor network. Recent federal funding legislation emphasizes improving the condition of the strategic corridor network. Because it is only a supplemental criterion, it is given a lower weighting. If the road segment is on the strategic corridor network, then it receives full value for this criterion. If not, it receives no value.

- **Functional Classification (5% weight, 10 to 50 points)** – This criterion factors in the functional classification of the roadway. It is given a lower rating because functional class is also a function of the criteria used to designate routes on the freight and strategic corridor networks. More significant functional classifications are valued higher within this criterion than lower classifications.

- **State Safety Programs (5% weight, 0 to 50 points)** – This criterion is used to give emphasis to road segments that are also included in the safety program. Since it is a supplemental criterion, it is given a lower weighting. If the road segment is included in a safety program, then it receives full value for this criterion. If not, it receives no value.

The weighted criteria are entered into a ranking formula that provides a numerical priority ranking score (PRS). Primary routes will be qualified based on a threshold PQI score for inclusion in a pool of candidates. A PQI score less than 2.64 classifies the road segment in poor condition, and the segment is an eligible candidate for resurfacing. Once eligible candidates are identified, field engineers will use the following field review criteria, which are worth a maximum of 400 points, to complete the ranking process:

- **Relative Condition (minus 100 to 100 points)** – This criterion is used so that PQI data accurately reflects the current condition of the pavement due to localized improvements made by SCDOT maintenance forces or accelerated deterioration due to increased loads.

- **Corridor Continuity (0 to 100 points)** – This criterion is used for route segments that would complete the resurfacing of, or add to the completion of the resurfacing of, a route corridor through a county or a district.

- **Connectivity (0 to 100 points)** – This criterion is used for routes that provide connectivity to economic centers, schools, emergency facilities or other key points of public interest.

- **Contractibility (0 to 100 points)** – Contractibility can be the grouping of roads in a specific geographical area into one project to achieve economies of scale or group roads with like treatments into a single project to reduce project costs.

The following Act 114 criteria were considered but deemed **not relevant** as they relate to the pavement improvement program, as they do not support the **purpose and need** of this program category.

- **Financial Viability** – Not relevant as part of the prioritization process since rehabilitation and reconstruction are normal steps in the life cycle of a pavement.

- **Potential for Economic Development** – Not relevant as part of the prioritization process since these projects consist of the rehabilitation and reconstruction of existing routes.

- **Environmental Impact** – Not relevant as part of the prioritization process since these projects consist of the rehabilitation and reconstruction of existing pavements.

- **Alternative Transportation Solutions** – Not relevant to the Pavement Improvement Program category.

- **Consistency with Local Land Use Plans** – Not relevant to the prioritization process since this program category consists of the rehabilitation and reconstruction of existing roads.

Upon completion of the prioritization and pavement improvement project development process, the prioritized list of primary routes that fulfill each county's funding allocation will be presented to the SCDOT Commission for approval.

All raw data used by the districts to determine the final ranking of candidates selected from the pool must be included when the project packages are submitted to the Director of Maintenance for review. All data used for project prioritization will be kept on file as required by Departmental Directive 51 and SCDOT's record retention schedules.

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